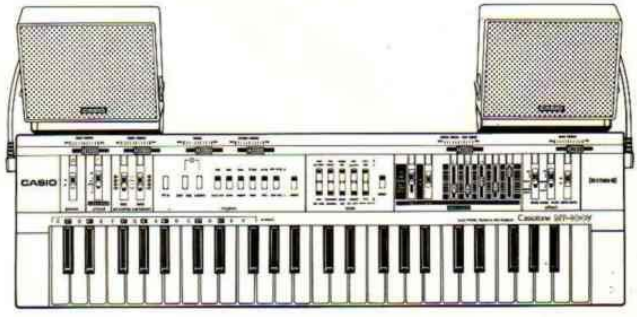
Casiotone MT-400V

Operation Manual..... 1
Manual de Operación....29



CASIO

Casiotone MT-400V

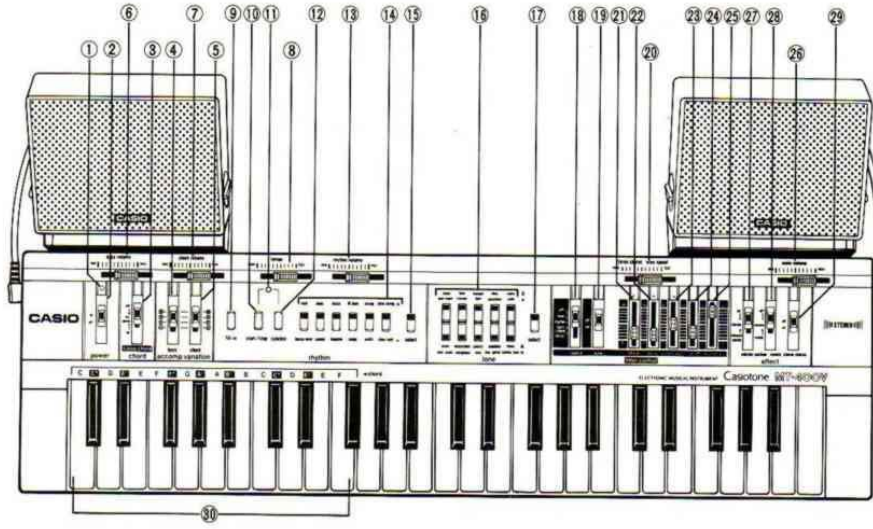
ELECTRONIC MUSICAL INSTRUMENT

Thank you very much for purchasing the Casiotone MT-400V. This revolutionary electronic keyboard features a filter control function incorporating the latest in electronic technology and Casio originality, allowing you to easily create your very own sounds. Its two speakers can be attached and removed at will and offer a particularly impressive sound in combination with the stereo chorus effect. There are 20 preset tones, 12 auto-rhythms and a variety of auto-accompaniment functions and basic features all packed into a compact body. And thanks to its 3-way AC/DC power source, you can play music on your MT-400V anytime, anywhere.
In order to be able to enjoy this new musical instrument to the full and ensure long service life, please read this manual thoroughly and operate the unit correctly.

Contents

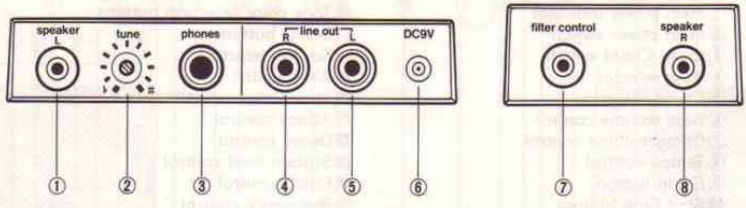
1. Name of each part 3
2. Side panels (Connection jacks & Pitch control) 5
   • Connecting the speakers to the instrument 6
3. Power supply 7
4. Preset tone colors & sound effects 8
5. Auto-rhythm 9
6. Auto-accompaniment 11
7. The Filter Control Function 14
   • Introduction to the Filter Control 14
   • Functions of each switch 16
8. Let's try creating your original sounds 18
   • Practical operation & Samples of interesting sounds 18
   • Filter control by the Breath Filter Controller BFC-1. (optional) 24
9. Care of your unit 25
10. Troubleshooting 26
11. Specifications 27

1 Name of each part



① Main power indicator
② Main power switch
③ Casio Chord switch
④ Bass selector
⑤ Chord selector
⑥ Bass volume control
⑦ Chord volume control
⑧ Tempo control
⑨ Fill-in button
⑩ Start/Stop button
⑪ Tempo indicator lamp
⑫ Synchro Start button
⑬ Rhythm volume control
⑭ Rhythm selection buttons
⑮ Select button
⑯ Tone color selection buttons
⑰ Select button
⑱ Source selector
⑲ WAW switch
⑳ Stereo chorus/WAW speed control
㉑ Attack control
㉒ Decay control
㉓ Sustain level control
㉔ Cutoff control
㉕ Resonance control
㉖ Main volume control
㉗ Vibrato switch
㉘ Sustain/Reverb. switch
㉙ Stereo chorus switch
㉚ Accompaniment keyboard

2 Side Panels (Connection jacks & Pitch control)



①⑧ Speaker jacks
For connection for the supplied speakers.

② Pitch control knob
This adjusts the pitch of the entire keyboard within 1/4 tone and provides easy tuning with other instruments.

③ Headphone jack
To enjoy playing your MT-400V in privacy, connect a headphone (optional) to this jack.

④⑤ Output jacks
To get more powerful sound from the Casiotone, connect it to audio equipment or a keyboard amplifier. The volume can be adjusted by using the volume control on the Casiotone.

⑥ AC adaptor jack
Plug in an AC adaptor AD-5 or a car battery adaptor CA-5.

⑦ Filter Control jack
If the Breath Filter Controller (BFC-1, soon available) is connected, the Filter Control function of this instrument (→ p.14) can be regulated by the pressure of your breath (→ p.24).

Connecting the Speakers to the Instrument

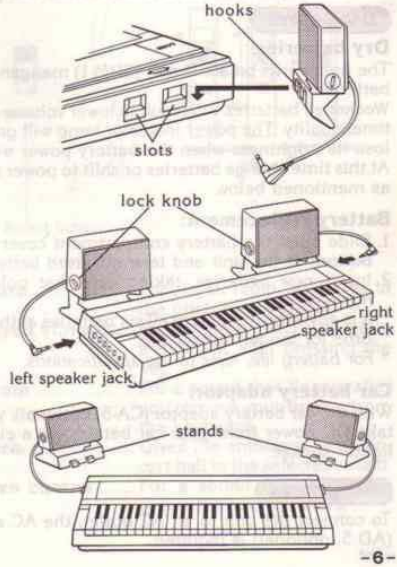
The Casiotone MT-400V is a stereophonic keyboard. Fit two speakers to the instrument as follows.

① Insert hooks of speaker's stand into slots on rear panel. One speaker for the right and the other for the left. The speakers are interchangeable.

② Connect each speaker's cord to its corresponding jack.

③ Adjust the angle of speaker by turning lock knob to the left, then fix it by turning the knob to the right.

* Speakers can be used remote from the instrument by using stands.



3 Power supply

The unit operates on both AC and DC power.

DC power

Dry batteries:

The unit works on six D size (SUM-1) manganese dry batteries.
Weakened batteries will result in lower volume or poor tonal quality. The power indicator lamp will gradually lose its brightness when the battery power weakens. At this time change batteries or shift to power sources as mentioned below.

Battery replacement:

1. Slide open the battery compartment cover on the bottom of the unit and take out used batteries.
2. Insert new batteries, taking care that polarity is not reversed.

* It is advisable to replace all six batteries at the same time for longer battery life.
* *For battery life, refer to the specifications.*

Car battery adaptor:

With the car battery adaptor (CA-5, optional), you can take DC power from your car battery via a cigarette lighter socket.

AC power

To connect the unit to an AC outlet, the AC adaptor (AD-5, optional) is required.

Use only an adaptor with the same voltage rating (100, 117, 220, or 240V) as your power supply to prevent component damage.
Plug the AC adaptor into the AC outlet and the cord into the unit; this automatically cuts off battery power supply.

* When batteries are not used for a long period of time, it is advisable to remove them from the battery compartment. (Battery leakage may occur and damage electrical parts.)

• Auto power-off function

For power economy, an automatic power cut-off function activates after approximately 6 minutes, if you do not touch the keys. Power supply will be resumed by switching the main power switch off and then on again.

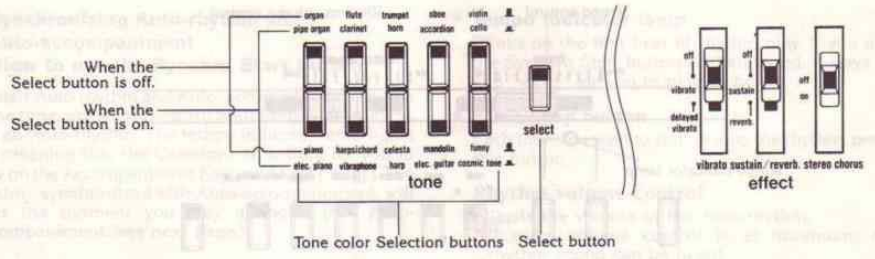
CAUTION

* WHERE USED FROM THE MAINS THIS UNIT MUST ONLY BE USED WITH A CASIO MAINS ADAPTOR TO PREVENT THE RISK OF DAMAGE.
* When the adaptor is left connected to an AC outlet, it may warm up, but this is quite normal. Disconnect the adaptor whenever possible, especially if not used for a long time.

The following misuse may lead to battery burst.

1. Use of an AC adaptor other than a genuine Casio adaptor.
2. Insertion of batteries with incorrect polarities (+, −).

4 Preset tone colors & sound effects

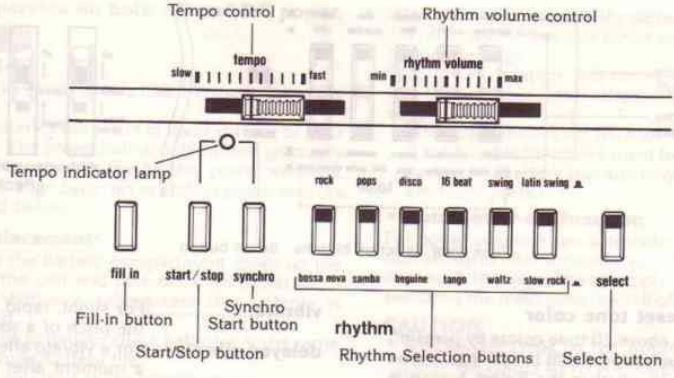


- **Selecting a preset tone color**
  Select one of the above 20 tone colors by pressing the corresponding button. Each button has 2 tone colors according to whether the Select button is pressed or not.

- **Adding sound effects**
  The effects VIBRATO, DELAYED VIBRATO, SUSTAIN, REVERBERATION and STEREO CHORUS can be added by sliding each switch to the corresponding position.

vibrato..... For slight, rapid variations in the pitch of a sound.
delayed vibrato.... For a vibrato effect that starts a moment after pressing the key.
sustain ..... For a sound that lingers after you remove your fingers from the keyboard.
reverb. ..... Gives the ambience of a concert hall to the selected sound.
stereo chorus..... For a sound that swells between the two speakers.

5 Auto-rhythm

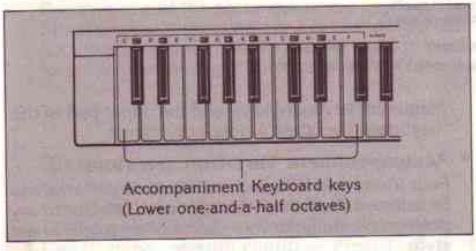


- **Selecting an auto-rhythm**
  Select one of above 12 auto-rhythms by pressing a Rhythm Selection button. When the Select button is off (▁), the rhythm written above the button is selected. When on (▔), the rhythm written below is selected.

- **Fill-in button**
  If pressed during rhythm play, fill-in (percussive ornament) will be performed.

- **Synchronizing Auto-rhythm and Auto-accompaniment [How to use the Synchro Start button]**

To start Auto-rhythm and Auto-accompaniment at the same time, press the Synchro Start button after selecting an Auto-rhythm. The tempo indicator lamp lights up, meaning that the Casiotone is waiting for you to play on the Accompaniment Keyboard keys (→ fig.). The rhythm, synchronized with Auto-accompaniment, will start the moment you play a chord. (For Auto-accompaniment, see next page.)



- **Tempo indicator lamp**

Blinks on the first beat of rhythm play. If you use the Synchro Start button as mentioned, it stays lit and "waits" for you to play a chord.

- **Start/Stop button**

Each time you want to start or stop the rhythm, press this button.

- **Rhythm volume control**

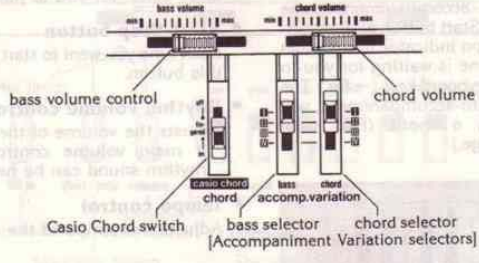
Adjusts the volume of the Auto-rhythm.
* If main volume control is at minimum, no rhythm sound can be heard.

- **Tempo control**

Adjusts the tempo of the Auto-rhythm.

6 Auto-accompaniment

The auto-accompaniment function of the MT-400V offers two ways of playing chords. One is the normal way in which you play three or four notes at the same time, and the other is an easier way named "One-finger method", which is accomplished by the Casio Chord system.



- **Casio Chord switch**

Turns auto-accompaniment on and off.

off ..... For normal playing without auto-accompaniment.

fingered..... For auto-accompaniment by pressing chords as usual.

on..... For auto-accompaniment by the Casio Chord system.

*If the Casio Chord switch is set to "fingered" or "on", the lower one-and-a-half octaves become accompaniment keyboard keys, and the upper part of the keyboard becomes 4-note polyphonic.

- **Accompaniment Variation selectors**

Four kinds (I to IV) of bass and chord patterns can be selected for each rhythm. Set each selector to any position according to your choice of accompaniment style.

* These selectors do not function if auto-accompaniment is not used, i.e., if the Casio Chord switch is set to "off".

* The sounds of bass and chords vary according to which one of the 12 auto-rhythms and which type of Accompaniment Variation is selected.
* Set the two selectors to position I for a typical accompaniment style corresponding to each rhythm.

- **Bass Volume Control**
  Adjusts the volume of the bass sound.
- **Chord Volume Control**
  Adjusts the volume of the chord sound.

[1] Auto-accompaniment by the Casio Chord System (One-finger Method)

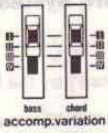
Casio Chord System

The Casio Chord system has been developed so you can play the four main types of chords more easily. Playing of the chords is simplified as shown below:
Pressing one of the accompaniment keyboard keys produces a major chord corresponding to that note. Simultaneously pressing any key to the right (two keys at the same time) results in a minor chord. Similarly, pressing one more key to the right (three keys in all) produces a seventh chord, and pressing the fourth key to the right (four keys in all) creates a minor seventh chord.

(Example)
C (C major chord) — Press ①.
Cm (C minor chord) — Press ①, ② together.
C_7 (C seventh chord) — Press ①, ②, ③ together.
Cm_7 (C minor seventh chord) — Press ①, ②, ③, ④ together.
* Not only ②, ③ and ④, but any black or white keys can be used as long as they are to the right of ①.

① Set the Casio Chord switch to "on".

② Set the Accompaniment Variation selectors (bass & chord) to suitable positions.



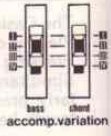
③ Select one of the auto-rhythms and press the Synchro Start button.
* The lamp above the Synchro Start button lights up, meaning that the accompaniment keyboard keys are ready for you to play.

④ Play on the accompaniment keyboard keys according to the Casio Chord system.
* Adjust the tempo, bass volume, chord volume and rhythm volume by using the respective controls.

[2] Auto-accompaniment by playing chords as usual.

① Set the Casio Chord switch to "fingered".

② Set the Accompaniment Variation selectors (bass & chord) to suitable positions.



③ Select one of the auto-rhythms and press the Synchro Start button.
* The lamp above the Synchro Start button lights up, meaning that the accompaniment keyboard keys are ready for you to play.

④ Play a chord on the accompaniment keyboard keys.
* Adjust the tempo, bass volume, chord volume and rhythm volume by using the respective controls.

7 The Filter Control Function

The Filter Control Function of the MT-400V allows anyone to enjoy creating countless tone colors very easily. Sound materials that can be modified by the Filter Control are the 20 preset tone colors, rhythm sound, bass/chord sound, or the noise constituent provided on the MT-400V. You can create original tone colors by modifying these sound materials with the filter controls such as "cutoff", "resonance", "attack", "decay", "sustain level", "waw".

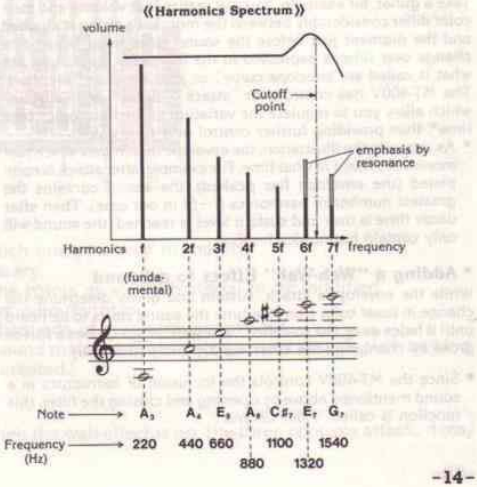
Introduction to the Filter Control

* Cutoff and Resonance

When you play a la (A) on an instrument, the sound includes a variety of frequency components. The lowest among them is called the fundamental tone, while the other components heard simultaneously with the fundamental tone which are multiples of the fundamental frequency are called *harmonics*.

For example, playing a 220 Hz la (A) on the piano also causes 440 Hz (2x), 660 Hz (3x), 880 Hz (4x) . . . sounds to be heard at the same time. One of the reasons why the tone color differs between, say, a piano and a harpsichord, even when the same 220 Hz la (A) is played, is that the amount and frequency of their harmonics are different.

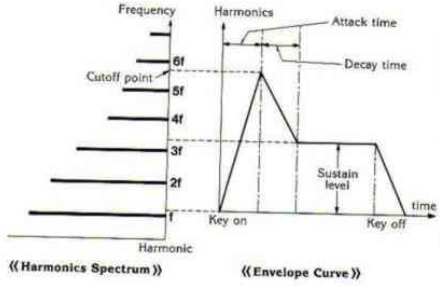
The cutoff control on the MT-400V cuts off any harmonic frequencies over a specified point (the cutoff point), causing the tone color to change. The resonance control allows further variation of the sound by emphasizing the harmonics near the cutoff frequency.



* The Envelope Curve, Controlled by "Attack", "Decay", and "Sustain".

Every sound has its own specific variations over time. That is to say, both the volume and the tone color change along with time from the starting point of the sound until it dies out completely. Take a guitar, for example. You will realize that volume and tone color differ considerably between the moment a string is plucked and the moment just before the sound fades away. When this change over time is expressed in the form of a graph, you get what is called an *"envelope curve"*, or just *"envelope"* for short. The MT-400V has controls for "attack", "decay" and "sustain" which allow you to regulate the variation of the harmonics over time*, thus providing further control over tone color.

* As shown in the illustration, the envelope determines which harmonics are heard at what time. For example, after attack is completed (the envelope has peaked), the sound contains the greatest number of harmonics (f–5f in our case). Then after decay time is over and sustain level is reached, the sound will only contain harmonics f–3f.

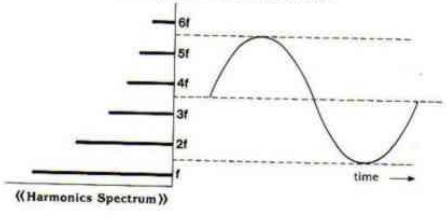


* Adding a "Wah-Wah" Effect to a Sound

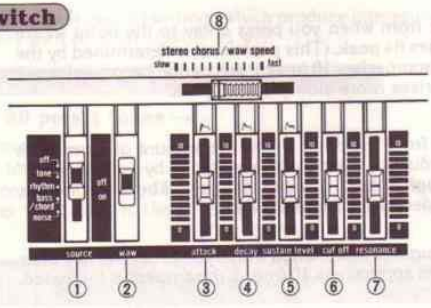
While the envelope's attack, sustain and decay determine the change in tonal color from the time the sound starts to be heard until it fades away, the so-called "wah-wah" effect causes a sort of growl by changing tone color rapidly and periodically.

- Since the MT-400V controls the inclusion of harmonics in a sound mentioned above by opening and closing the filter, this function is called *"Filter Control"*.

《Principle of the Wah-Wah Effect》



Functions of each switch



①Source selector

Select one of the four sound materials according to which one you want to modify.

off ..... when the Filter Control is not necessary.
tone ..... when using one of the 20 preset tone colors as sound material to be modified.
rhythm ..... when modifying one of the 12 preset auto-rhythms.
bass/chord ..... when modifying the bass and chord sounds of auto-accompaniment.
noise ..... when using the noise constituent as sound material. (This allows natural sounds such as wind, waves, steam locomotive etc. to be created.)

②WAW switch

Produces the periodical effect of "wah-wah" growling. When the wah effect is on, the three controls attack, decay and sustain level do not function.

③Attack Control

Determines the period of time from when you press a key to the point where the amount of harmonics reaches its peak. (This peak level is determined by the "cutoff control".) As the control approaches 10 (max.), this period becomes longer, i.e., the amount of harmonics rises more slowly to the peak.

④Decay Control

Determines the period of time from the point where the amount of harmonics peaks to the point where an amount of harmonics determined by "sustain level" is maintained. As the control approaches 10 (max.), this period becomes longer, i.e., the amount of harmonics decreases more slowly.

⑤Sustain Level Control

Determines the amount of harmonics maintained while you press the key after decay time (→ fig.). As the control approaches 10 (max.), the amount is increased.

⑥Cutoff Control

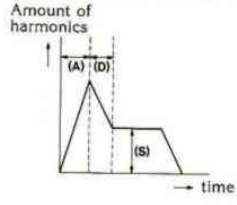
Cuts off some of the harmonics in the series which constitutes the sound material. As the control is slid away from 10, higher harmonics begins to be cut off, producing a milder sound. Also determines the uppermost point to which the amount of harmonics rises after the attack time (→ fig.).

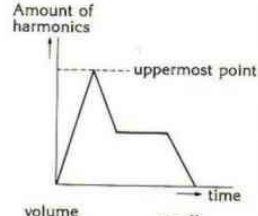
⑦Resonance Control

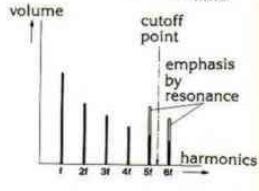
Puts emphasis on harmonics near the point (or frequency) determined by the "cutoff", and gives various nuances, for instance a nasal timbre. As the control approaches 10, the degree of emphasis is increased.

⑧Stereo Chorus/Waw Speed Control

Determines the speed (cycle) of the "waw" effect. When the stereo chorus switch is on, the speed of the stereo chorus effect can also be adjusted.







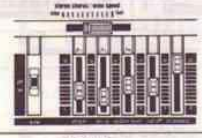
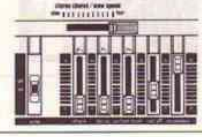
8 Let's try creating your original sounds

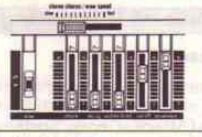
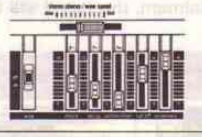
As a reference, several examples of filter control settings which produce interesting sounds are given here. Please be sure to try creating your very own original sounds as well.

Practical Operation & Samples of interesting sounds

—— Modifying one of the 20 preset tones ——

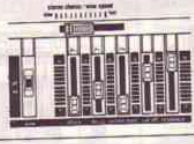
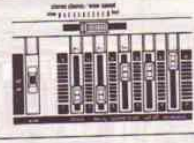
①Set the source selector to "tone".
②Select one of the 20 preset tones.
③Adjust the level of the five controls (Attack, Decay, Sustain Level, Cutoff, Resonance).
* When the cutoff control is set to minimum, the sound will become almost inaudible.

Name of sound sample	Preset	Source selector	Filter control operation	Remarks
Wah-wah brass	trumpet			• **Sound effect**—delayed vibrato. * May also be used with wah effect on.
Space sound	celesta			• **Sound effects**—vibrato, sustain, stereo chorus. * When wah effect is on, the three controls attack, decay and sustain do not function.

Name of sound sample	Preset	Source selector	Filter control operation	Remarks
Funky clavinet	elec. guitar			• **Sound effect**—stereo chorus * Set chorus/wah speed to about 1. * Best effects obtained with chords.
Cat	violin			• **Sound effect**—vibrato. * Play middle to high notes.

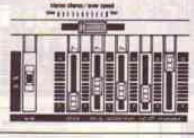
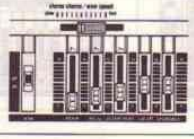
—— Modifying one of the 12 preset auto-rhythms ——

①Set the source selector to "rhythm".
②Select one of the 12 preset auto-rhythms.
③Press the Start/Stop button and start the rhythm.
④Adjust the level of the five controls (Attack, Decay, Sustain Level, Cutoff, Resonance).
* The rhythm sound consists of 7 instrumental sounds (bass drum, snare drum, high conga, low conga, high hat, cymbal, claves), and all these are modulated.

Name of sound sample	Preset	Source selector	Filter control operation	Remarks
Techno pop (phaser rhythm)	**rock (disco)**			• Sliding the sustain control up and down will change the effect. • If the wah effect is turned on, select a slow speed.
Techno 16 beat	**16 beat**			• If the wah effect is turned on, further variation will be added to rhythm sound.

—— Modifying the bass/chord sound (of auto-accompaniment) ——

①Set the source selector to "bass/chord".
②Select one of the 12 preset auto-rhythms.
③Set the Casio Chord switch to "fingered" or "on".
④Press the Start/Stop button and start the rhythm. (Or use the Synchro-Start.)
⑤Start the auto-accompaniment by playing on the auto-accompaniment keyboard.
⑥Adjust the level of the 5 controls (Attack, etc.)
* If the WAW switch is turned on, the "wah" effect is applied to the bass/chord sound.

Name of sound sample	Preset	Source selector	Filter control operation	Remarks
16 beat bass	**16 beat**			• **Casio Chord**—fingered or on • **Accompaniment variation**—bass IV chord IV
March (tuba bass)	**tango**			• **Casio Chord**—fingered or on. • **Accompaniment variation**—bass III chord III • Effective for 2-beat melodies.

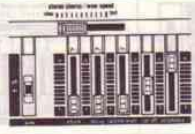
—— Modifying the noise constituent ——

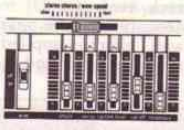
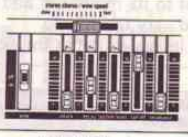
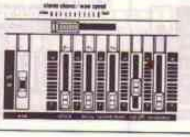
①Set the source selector to "noise".
②Select any one of the 12 auto-rhythms.
③Press the Start/Stop button and start the rhythm.
④Adjust the level of the 5 controls (Attack, etc.)
* The noise sound is produced simultaneously with the bass drum of the rhythm sound.
* If the WAW switch is turned on, the "wah" effect is applied to the noise sound.
* If the cutoff control is set to minimum, the noise sound is not produced.

Suggestions

This noise sound will produce more interesting sound effects as you get used to the operation. Practice the following suggestions and make your own original, impressive sound effects.

①Reduce the rhythm volume control to its minimum and leave the noise sound only.
②Change to other auto-rhythms and vary the tempo.
③Add the "wah" effect and change its speed using the Stereo Chorus/Waw Speed Control.

Name of sound sample	Preset	Source selector	Filter control operation	Remarks
Wind	**any rhythm**			* Set the rhythm volume to "min". * You can select any rhythm for this effect.

Name of sound sample	Preset	Source selector	Filter control operation	Remarks
Locomotive	**tango**			* Set rhythm volume to "min". * Gradually turn up the tempo control from slow to achieve a locomotive effect. * By making effective use of the resonance control and the main volume, you will get the impression that the locomotive is moving away into the distance. * Blow the whistle by pressing a chord of two notes on the upper keyboard using the flute preset sound.
Printing machines	**samba**			* Set the rhythm volume to "min". * Set the tempo control as shown in the illustration below (to about 8—9).
Sandy beach	**any rhythm**			* Set the rhythm volume to minimum. * The size of the waves changes when you slide the resonance control up and down.

Filter Control by the Breath Filter Controller BFC-1 (optional)

There is another way of creating your own original tone colors, in which you can determine the tone color by applying your breath to the instrument strongly or faintly instead of shifting the five controls on the instrument up and down.

* Connecting the BFC-1 to the instrument

Insert the plug of the BFC-1 into the Filter Control jack on the right side of the MT-400V.

* Practical operation

The following operations are used when you choose one of the 20 preset tone colors as sound material.

①Set the source selector to "tone".
②Determine the levels of the cutoff & resonance controls.
③Press a key on the keyboard and breathe into the BFC-1.

- As you breathe into the BFC-1 strongly, the amount of harmonics quickly reaches the peak determined by the cutoff control. This function of the breath control corresponds to adjustment by the Attack Control.
- When you ease the pressure of your breath, the amount of harmonics begins to be reduced from the peak. And if you keep the pressure of your breath at a certain level, that determines the sustain level.
- If the BFC-1 is connected to the MT-400V, the WAW switch on the MT-400V does not function.

9 Care of your unit

1. Avoid heat, humidity or direct sunlight.

Do not overexpose the unit to direct sunlight, or place near an air conditioner, or in any extremely hot place.

2. Take care not to drop the unit and avoid strong shocks.

A strong shock may cause malfunctions. When carrying or transporting the unit, protect the keyboard and switches with soft materials.

3. Keep the unit free of liquids, dust, etc.

Do not allow bits and pieces to get between the keys, especially metallic objects such as hairpins, sewing needles or coins. Also, do not let the unit get wet.

4. Never attempt to modify any parts of the unit.

The unit is a precision instrument, made up of electronic parts. Any modification of, or tampering with, inner parts may cause problems.

5. Do not apply lacquer, thinner or similar chemicals.

Clean the keyboard with a soft cloth dampened with detergent. (Soak the cloth in a detergent and squeeze until almost dry.)

10 Troubleshooting

* When using dry batteries, it is a good idea to first check whether the batteries are not already spent. (see page 7)

Trouble	Possible cause	Remedy
No sound, even if keys are pressed.	1. Main volume turned down. 2. Speakers not connected. 3. Headphones connected.	1. Turn up main volume. 2. Connect speakers. 3. Disconnect headphones.
No rhythm heard.	Rhythm volume turned down.	Turn up rhythm volume.
No accompaniment heard.	Bass and chord volume turned down.	Turn up bass and chord volume.
Occasional disturbance through noise.	Noise caused by refrigerators, washing machines and similar electric appliances.	Use an outlet as far away as possible from the appliance thought to be the cause.
No sound when connected to external amplifier.	1. Main volume on the MT-400V turned down. 2. Defective connection cord.	1. Turn up main volume. 2. Replace connection cord.

11 Specifications

Model:	Casiotone MT-400V
Number of keys:	49 keys
Preset tone colors:	20 kinds; piano, electric piano, harpsichord, vibraphone, celesta, harp, mandolin, electric guitar, funny, cosmic tone, organ, pipe organ, flute, clarinet, trumpet, horn, oboe, accordion, violin, cello.
Sound effects:	Vibrato, Delayed vibrato, Sustain, Reverberation, Stereo chorus.
Auto-rhythms:	12 kinds; rock, pops, disco, 16 beat, swing, latin swing, bossa nova, samba, beguine, tango, waltz, slow rock. * Start/Stop button, Synchro start button, Fill-in button, Rhythm volume control, Tempo control.
Auto-accompaniment function:	Casio Chord switch (fingered/on), Accompaniment Variation selectors (bass & chord), Bass volume control, Chord volume control.
Filter control function:	Source selector (tone, rhythm, bass/chord, noise), Attack, Decay, Sustain level, Cutoff, Resonance, WAW, Breath filter control (with the optional BFC-1).
Pitch control:	±1/4 tone (50 cents)
Speakers:	10 cm dia. x 2 (output 1.8W + 1.8W)
Output jacks (line out):	Output impedance = 2 KΩ Output voltage = 1 V (RMS) MAX.

Power source:	3-way AC/DC power source; • Home AC outlet: 100, 117, 220 or 240V (±10V) with optional AC adaptor AD-5. • Batteries: 6 D-size manganese dry batteries. Battery life = about 16 hours. • Car battery: with car battery adaptor CA-5.
Power consumption:	7.7 W
Dimensions:	main body; 66(H) x 660(W) x 188(D) mm ($2^5/_8$"(H) x 26"(W) x $7^3/_8$"(D)) speaker; 169(H) x 164(W) x 65(D) mm ($6^5/_8$"(H) x $6^7/_{16}$"(W) x $2^5/_8$"(D))
Weight:	main body; 3.0 kg (6.6 lb) Speaker; 0.6 kg (1.3 lb)

* Design and specifications are subject to change without notice.

GUIDELINES LAID DOWN BY FCC RULES FOR USE OF THE UNIT IN THE U.S.A. (not applicable to other areas).

This equipment generates and uses radio frequency energy and if not installed and used propely, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interferencce will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user isd encouraged to try to correct the interference by one or more of the following measures:

..... reorient the receiving antenna
..... relocate the computer with respect to the receiver
..... move the computer away from the receiver
..... plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessry, the user should consult the dealer or an experienced radio/television technician foir additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Rdio-TV Interference Problems". This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.